

PROCESS OF MAINTAINING HYBRID ETCH

ABSTRACT OF THE DISCLOSURE

Process for combined chemical cleaning and etching of parts made of aluminum and/or aluminum alloys including: (a) providing a cleaning and etching solution including 5-30 grams/liter of phosphoric acid; 5-30 grams/liter of hydrogen fluoride; 120-220 grams/liter of sulfamic acid; 55-85.0 grams/liter of glycol ether; and balance water; (b) contacting the parts with the solution for a time sufficient to achieve the desired amount of cleaning and etching; (c) periodically measuring the etching rate of the solution; (d) when the etching rate is below the required minimum rate, adding sufficient hydrogen fluoride to restore the etching rate above the required minimum rate; and (e) periodically adding sufficient sulfamic acid to prevent the formation of scale made of hydrated aluminum fluoride.